REMARKS

In the Office Action dated September 10, 2008, claims 1, 2, 5, 7-10, 12, 14-16, and 18 were presented for examination. Claims 1, 2, 5, 7-10, 12, 14-16 and 18 were rejected under 35 U.S.C. §101. Claim 1 was rejected under §112, second paragraph. Claims 1-2, 7-9, 12, 14, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Ostergard*, "A Fast Algorithm for the Maximum Clique Problem." Claims 5, 10, and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Ostergard* in view of *Pardalos et al.*, "An Exact Parallel Algorithm for the Maximum Clique Problem" in further view of *Szymanski* "Spanning Tree Algorithm for Spare Network Capacity.".

I. Interview Request

Applicant's Attorney has left a telephone message with the Examiner requesting an Interview. However, the outgoing message of the Examiner clearly indicated he is on extended leave through the new year. Accordingly, Applicant respectfully requests an interview with the Examiner prior to action by the Examiner on the Response.

II. Rejection under 35 U.S.C. §101

In the Office Action dated September 10, 2008, claims 1, 2, 5, 7-10, 12, 14-16 and 18 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter.

The Examiner alleges that elements of claims 1, 2, 5, 7-10, 12, 14-16 and 18 are directed to a non-statutory matter. Applicant has amended claims 1, 7, and 12 to overcome the above rejection. The amendments are aimed to emphasize that the invention is directed to a system with a plurality of connected hardware components, these hardware components being represented by graph vertices. It is Applicant's position that a hardware component is a physical and tangible element, and is therefore statuary subject matter. Support for this amendment is found in paragraph 0006 of Applicant's publication. Accordingly, no new matter has been added with this amendment.

The Examiner rejected claims 1, 2, 5, 7-10, 12, 14-16, and 18 as being inoperative and therefor lacking utility. Applicant amended claims 1, 7, and 12 to overcome the above rejection. With respect to the figure provided by the Examiner in section 6 of Office Action, it is Applicant's position the claimed method as amended is operable. The connectivity counts for vertices 1, 2, 3, 4 are 2, 3, 2, 1 respectively. The vertex with a least connectivity number is vertex 4. After removing vertex 4 from the graph, the connectivity count of a least connected vertex is equal to the number of remaining vertices in the graph. Indeed, the connectivity count of each of the vertices 1, 2, and 3 is 2 which is equal to the number of remaining vertices 2. Thus, vertices 1, 2, and 3 constitute a clique in the graph.

Accordingly, based upon the amendments to claims 1, 2, 5, 7-10, 12, 14-16 and 18 presented herein, Applicant respectfully requests that the Examiner remove the rejection under 35 U.S.C. §101 and grant an allowance of claims 1, 2, 5, 7-10, 12, 14-16 and 18.

III. Rejection under 35 U.S.C. §112, second paragraph

In the Office Action dated September 10, 2008, the Examiner rejected claim 1 under 35 U.S.C. §112, second paragraph.

Applicant has amended claim 1 to provide proper antecedent basis by substituting "the number of remaining vertices" with "a number of remaining vertices." Based upon this amendment, it is Applicant's position that the subject phrase is now positively recited. Accordingly, Applicant respectfully requests that the Examiner remove the rejection set forth under 35 U.S.C. §112, second paragraph, and grant an allowance of claim 1.

IV. Rejection of claims 1, 2, 7-9, 12, 14 and 15 under 35 U.S.C. §103(a)

In the Office Action dated September 10, 2008, claims 1, 2, 7-9, 12, 14, and15 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Ostergard*.

Applicant's remarks to *Ostergard* in the prior communication are hereby incorporated

by reference.

The Examiner employs *Ostergard* in relation to updating the connectivity count of each vertex in the graph citing Algorithm 2, line 17 and page 202, section 2.4. Applicant respectfully disagrees.

Algorithm 2, line 17 reads as follows U:= U\{v[i]}, where U is a set of vertices under consideration. According to line 17 the updated set U is created from the old set U by removing element v[i]. It should be noted, that unlike updating the set of vertices, updating a connectivity count for all vertices requires calculating a number of neighbors connected to each vertex. In addition, on page 202, *Ostergard* teaches ordering of vertices based on their degrees (connectivity counts). However, this ordering refers to an initial ordering and will not be updated at a later stage while performing the algorithm. See also page 199, paragraph 2, lines 1-3. In contrast, the connectivity count in the invention of Applicant is updated at each iteration. Each time a vertex is removed from the graph the connectivity count is updated.

Furthermore, the algorithm described by *Ostergard* is based on searching for a maximum clique that contains a particular vertex. This particular vertex is removed and a search for a clique is performed in the subset of neighboring vertices. "We first consider cliques in S_n that contain v[n], than cliques in $S_{(n-1)}$ that contain v[n-1]." See page 199, section 2.2. In contrast, the Applicant's algorithm is not bound to any particular vertex. Rather, it is based upon selecting a vertex with a least sum of said connectivity counts of all neighboring vertices (if multiple vertices have the same connectivity count) or a vertex with a least connectivity count and than removing this selected vertex from the graph. See Fig. 2, step 48 of the Applicant's publication.

Applicant amended claim 1 to further distinguish his invention over *Ostergard*. Accordingly, claim 1, as amended, teaches selecting all vertices with the least connectivity count to further select among them, *i.e.* the selected vertices, a vertex with the least sum of connectivity

counts of all neighboring vertices. Subsequently this selected vertex is removed from the graph and the connectivity count of all vertices is updated. *Ostergard* does not teach the limitations as recited above. In contrast, the pruning strategy of *Ostergard* is based on value of the function *c(i)* that gives the largest clique in S_i, wherein the search for a clique is limited to a subset of vertices neighboring one selected vertex (pruning the rest of the vertices).

To establish a rejection under 35 U.S.C. §103(a), all the claim limitations must be taught or suggested in the prior art.[1] If the prior are references do not teach or suggest every claim limitation of the Applicant's invention, then they do not meet every requirement under 35 U.S.C. §103(a) and are not sufficient to uphold a rejection under 35 U.S.C. §103(a).[2] In the present case, as stated above, the invention claimed by Applicant employs a different algorithm than that of *Ostergard* which yields a different product. Therefore, because *Ostergard* does not teach or suggest utilizing the claimed algorithm of Applicant to create a maximum clique in the manner claimed by Applicant, the prior art reference does not teach every element of Applicant's claimed invention. Accordingly, the *Ostergard* reference is not sufficient to uphold a rejection under 35 U.S.C. §103(a). Accordingly, Applicant respectfully requests that the Examiner remove the rejection and direct allowance of claims 1, 2, 7-9, 12, 14, and 15.

V. Rejection of claims 5, 10, and 16 under 35 U.S.C. §103(a)

In the Office Action dated September 10, 2008, claims 5, 10 and 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Ostergard* in view of *Pardalos et al.*, in further view of *Szymanski et al.*

Applicant's remarks pertaining to *Ostergard* from above are hereby incorporated by reference, together with Applicant's prior comments to *Ostergard*, *Pardalos et al.*, and *Szymanski et al.*

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[1] MPEP §2143.03 (Citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

[2] See MPEP §2143.

As noted in the prior communication, each of *Pardalos et al.* and *Szymanski et al.* do not teach application of the algorithm claimed by Applicant to the elements present in dependent claims 5, 10, and 16. To support the rejection set forth, claims 5, 10, and 16 each require the limitation of the associated independent claims. If the prior are references do not teach or suggest every claim limitation of the Applicant's invention, then they do not meet every requirement under 35 U.S.C. §103(a) and are not sufficient to uphold a rejection under 35 U.S.C. §103(a).[3] In the present case, as stated above, Applicant applies a different algorithm than that taught in *Ostergard*. Therefore, because *Ostergard* does not teach the claimed algorithm of Applicant to create a maximum clique, the combination of references as applyed by the Examiner does not teach every element of Applicant's claimed invention. The *Ostergard* reference is not sufficient to uphold a rejection under 35 U.S.C. §103(a), and as such, the secondary references, which also lack the cited elements, in combination are also insufficient to uphold the rejection under 35 U.S.C. §103(a). Accordingly, Applicant respectfully requests that the Examiner remove the rejection and direct allowance of claims 5, 10, and 16.

VI. Conclusion

As mentioned above, Applicant's Attorney has request an Interview with the Examiner prior to action by the Examiner on this Response.

In view of the forgoing remarks to the claims, it is submitted that all of the claims remaining in the application are now in condition for allowance and such action is respectfully requested. Applicant is not conceding in this application that those claims in their prior forms are not patentable over the art cited by the Examiner, as the present claims are only for facilitating expeditious prosecution of the application. Applicant respectfully reserves the right to pursue these and other claims in one or more continuation and/or divisional patent applications. Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving

[3] See MPEP §2143.

any remaining issues pertaining to this application, the undersigned respectfully requests that she be contacted at the number indicated below.

For the reasons outlined above, an allowance of this application is respectfully requested.

Respectfully submitted,
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